

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:**1. Claims 1-21 (canceled)**

**22. (currently amended)** A ~~rechargeable~~ battery charging ~~recharging~~ apparatus which comprises;

a) a charger, which is either built into a personal computer or connected directly or indirectly thereto,

~~whereby~~ wherein an internal power supply source of said personal computer is used as a power supply for said charger in a charging operation for said ~~rechargeable~~ battery, and

wherein said charger ~~having built into it~~ includes a programmable charging processing operation program ~~required for charging of said rechargeable battery~~ having capability for recognizing a type of rechargeable battery to be recharged and for selecting one charging processing operation program from a plurality of charging operation programs stored in said charger, based upon information about the type of battery thus recognized, said one selected charging process operation program being suitable for executing said charging operation for said recognized type of battery and for setting and executing said selected program, and for monitoring conditions required for charging said recognized battery type, and for controlling recharging of said recognized battery, and

wherein a charging operation ~~is~~ may be performed by executing said charging processing operation program selected for said ~~rechargeable~~ selected battery to be charged ~~with~~ by utilizing an electric power supplied from said internal power supply source of said personal computer;

b) a battery holding apparatus which holds at least a a single ~~rechargeable~~ battery to be charged and connected directly or indirectly to said charger;

c) a display means connected to said personal computer and displaying at least one information selected from a group consisting of information related to a ~~rechargeable~~ battery to be charged, information related to conditions required for charging said ~~rechargeable~~ battery to be charged and information related to past and current charging situation or results of said charging operation; and

d) an input means connected to said personal computer ~~and~~ for inputting information at least about said respective ~~rechargeable~~ battery to be charged necessary to execute said charging processing operation program into a controller provided in personal computer; ~~and~~

wherein said ~~rechargeable~~ battery charging processing operation program is capable of executing ~~executes~~ high-speed charging processing, and further wherein said ~~rechargeable~~ battery charging processing operation program is capable of executing ~~executes~~ said charging with a charging current of at least 2C.

**23. (previously presented)** A rechargeable battery charging apparatus according to claim 22, wherein said charging processing operation program included in said charger is either built into said personal computer by inserting a floppy disk, a CD-ROM, or an IC card containing said charging processing operation program into a prescribed location of said personal computer, or by inserting a PCI board onto which an IC chip containing said charging processing operation program has been mounted into an expansion slot of said personal computer or by using a personal computer hard disk (HD) onto which said charging processing operation program has been installed.

**24. (previously presented)** A rechargeable battery charging apparatus according to claim 22, wherein each one of a plurality of said charging processing operation programs is created so as to have a respective charging process operation condition of a rechargeable battery to be subjected to charging processing, being different from each other based upon at least one factor among a rechargeable battery manufacturer name, rechargeable battery type, model, construction, quantity, battery capacity, and internal resistance and the like.

**25. (previously presented)** A rechargeable battery charging apparatus according to claim 22, wherein said charging processing operation program has a function to distinguish at least one information selected from a group of information consisting a manufacturer name, rechargeable battery type, model, construction, quantity, battery capacity, and internal resistance and the like of a rechargeable battery requiring charging processing inserted in said battery holding apparatus.

**26. (previously presented)** A rechargeable battery charging apparatus according to claim 22, wherein said charger automatically selects a charging processing operation program having the most suitable charging processing condition to said rechargeable battery to be charged, among a plurality of charging processing operation programs stored in said charger utilizing information about the rechargeable battery to be charged and distinguished by said personal computer, its-self or separate information about the rechargeable battery to be charged which is input into said personal computer by a user utilizing said inputting means.

**27. (previously presented)** A rechargeable battery charging apparatus according to claim 22 wherein information regarding a rechargeable battery requiring charging processing and inserted

into said battery holding apparatus is displayed on a display means of said personal computer.

**28. (previously presented)** A rechargeable battery charging apparatus according to claim 27, wherein a user uses an appropriate input means associated with said personal computer to input information regarding a rechargeable battery requiring charging processing inserted in said battery holding apparatus, said information being displayed on a display means of said personal computer.

**29. (previously presented)** A rechargeable battery charging apparatus according to claim 28, wherein when a user uses an appropriate input means associated with said personal computer to input information regarding a rechargeable battery requiring charging processing inserted in said battery holding apparatus and display said information on said display means of said personal computer in a case in which at least one information being different from information regarding a rechargeable battery requiring charging processing inserted in said battery holding apparatus is input, an alarm means is driven.

**30. (previously presented)** A rechargeable battery charging apparatus according to claim 28, wherein a user, based on information regarding a rechargeable battery requiring charging processing, sets various conditions necessary to be required for charging said rechargeable battery by selecting same from a large number of alternatives displayed on a display screen of said personal computer.

**31. (previously presented)** A rechargeable battery charging apparatus according to claim 22, wherein a predicted charging characteristics graph with regard to charging operation conditions for said selected rechargeable battery requiring

charging processing can be displayed on said display means of said personal computer.

**32. (previously presented)** A rechargeable battery charging apparatus according to claim 31, wherein said predicted charging characteristics graph indicates a relationship between a battery voltage and a charging time or a relationship between a battery temperature and a charging time.

**33. (previously presented)** A rechargeable battery charging apparatus according to claim 27, wherein a display means of said personal computer displays at least one information selected from a manufacturer name, a battery type, battery capacity, charging rate, and internal resistance and the like with regard to charging operation conditions for said selected rechargeable battery whether it distinguishes the start of charging or charging in progress.

**34. (canceled)**

**35. (previously presented)** A rechargeable battery charging apparatus according to claim 37, wherein a notification means is provided which, after a start of a prescribed charging processing operation under selected charging conditions with respect to a selected rechargeable battery requiring charging processing, in a case in which said charging operation is completed, makes notification to a user of said completion.

**36. (canceled)**

**37. (currently amended)** A ~~rechargeable battery charging~~ recharging apparatus which comprises;

a) a charger, which is either built into a personal computer or connected directly or indirectly thereto,

whereby an internal power supply source of said personal computer is used as a power supply for said charger in a charging operation for said rechargeable battery, and

wherein said charger ~~having built into it~~ includes a charging processing operation program ~~required for charging of said rechargeable battery~~ having capability for recognizing a type of rechargeable battery to be recharged and for selecting one charging processing operation program from a plurality of charging operation programs stored in said charger, based upon information about the type of battery thus recognized, said one selected charging process operation program being suitable for executing said charging operation for said recognized type of battery and for setting and executing said selected program, and for monitoring conditions required for charging said recognized battery type, and for controlling recharging of said recognized battery, and

wherein a charging operation ~~is~~ may be performed by executing said charging processing operation program selected for said ~~rechargeable~~ selected battery to be charged ~~with~~ by utilizing an electric power supplied from said internal power supply source of said personal computer;

b) a battery holding apparatus which holds at least single ~~rechargeable~~ battery to be charged and connected directly or indirectly to said charger;

c) a display means connected to said personal computer and displaying at least one information selected from a group consisting of information related to a ~~rechargeable~~ battery to be charged, information related to conditions required for charging said ~~rechargeable~~ battery to be charged and information related to past and current charging situation or results of said charging operation; and

d) an input means connected to said personal computer and for inputting information at least about said respective ~~rechargeable~~ battery to be charged necessary to execute said

charging processing operation program into a controller provided in personal computer; and

further wherein, said display means of said personal computer displays at least one information selected from a manufacturer name, a battery type, battery capacity, charging rate, and internal resistance and the like with regard to charging operation conditions for said selected rechargeable battery requiring charging processing, and separately displays either one of the start of charging or charging in progress and wherein said display means displays either a separate display of a battery voltage and battery temperature, which vary with the elapse of processing time, or a graph indicating a relationship between a battery voltage and a charging time or a relationship between a battery temperature and a charging time, further wherein, said charging processing operation program has separate settings of charging processing conditions for all rechargeable battery currently existing to be subjected to charging processing, respectively and further wherein, said charging processing operation program is created that is suitable for charging processing of a new rechargeable battery each time a new rechargeable battery is marketed, said program being added to an existing charging processing operation program by updating processing.

**38. (previously presented)** A rechargeable battery charging apparatus according to claim 37, wherein any one of a PCI board or PCI card each forming said PCI interface, a floppy disk, a CD-ROM, or an IC card each of which containing said updated charging processing operation program is distributed to a user for a fee or free-of-charge, said user updating said charging processing operation program in his or her personal computer with said new charging processing operation program.

**39. (previously presented)** A rechargeable battery charging apparatus according to claim 37, wherein said updated charging processing operation program is distributed to a user via a communication system including such as the Internet.

**40. (previously presented)** A rechargeable battery charging apparatus according to claim 39, wherein after a user, by means of a pre-established method, made a payment for said charging processing operation program for updating, said user downloads said charging processing operation program via the Internet, and updates said charging processing operation program in his or her personal computer with said new charging processing operation program.

**41. - 43. (canceled)**

**44. (currently amended)** A charging system for recharging a battery, comprising:

a) a personal computer comprising an internal power supply circuit;

b) a charger using said internal power supply circuit of said personal computer as a power supply for said charger in a charging operation and which is provided with a ~~built-in~~ charging processing operation program suitable for performing a charging operation for charging a respective rechargeable battery to be charged, said charger having capability for recognizing a type of rechargeable battery to be recharged and for selecting one charging processing operation program from a plurality of charging operation programs stored in said charger, based upon information about the type of battery thus recognized, said one selected charging process operation program being suitable for executing said charging operation for said recognized type of battery and for setting and executing said selected program, and for monitoring



conditions required for charging said recognized battery type, and for controlling recharging of said recognized battery, and;

c) a display means connected to said personal computer and displaying at least one information selected from a group consisting of information related to a rechargeable battery to be charged, information related to conditions required for charging said rechargeable battery to be charged and information related to past and current charging situation or results of said charging operation; and

d) a controller for causing said personal computer to drive;

e) a battery holding apparatus which holds at least single rechargeable battery to be charged and connected to said charger;

f) an input means connected to said personal computer and for inputting information at least about said respective rechargeable battery to be charged necessary to execute said charging processing operation program into said controller of said personal computer; and

g) an external power supply means for driving said personal computer, and wherein said system further ~~comprising~~ comprises a battery holding apparatus connected directly or indirectly to said charger, said battery holding apparatus ~~includes~~ including either a holder part configured so as to enable acceptance and a charging processing operation separately on one or a plurality of rechargeable battery of various sizes requiring charging processing, or a stand part configured so as to enable acceptance and a charging processing operation of a plurality of rechargeable battery to be charged of the same size packaged within a prescribed pack, or directly of a cellular telephone with said pack built thereinto, wherein, said charging processing operation program either built into said personal computer or stored in said charger externally connected to personal computer performs high-speed charging

processing, and further wherein, said rechargeable battery charging processing operation program executes charging with a charging current of at least 2C.

**45. (previously presented)** A charging system according to claim 44, wherein said charging processing operation program is built into said personal computer by inserting a floppy disk, a CD-ROM, or an IC card each containing said charging processing operation program therein, into a prescribed location of said personal computer, or by inserting a PCI board onto which an IC chip or PCI card each containing said charging processing operation program has been mounted into an expansion slot of said personal computer.

**46. (previously presented)** A charging system according to claim 44, wherein said charger is connected detachably to any one of output terminals of said internal power supply circuit of said personal computer, and is further connected either directly or indirectly, by an appropriate connector and/or cable to said battery holding apparatus.

**47. (previously presented)** A charging system according to claim 44, wherein said charger is connected to said power supply circuit of said personal computer through an internationally standardized interface such as a PCI or a USB of said personal computer.

**48. (previously presented)** A charging system according to claim 45, wherein each of said charging processing operation program has mutually different charging processing conditions from each other as set for at least one factor among a rechargeable battery manufacturer name, rechargeable battery type, model, construction, quantity, battery capacity, and

internal resistance and the like of a rechargeable battery to be subjected to charging processing.

**49. (previously presented)** A charging system according to claim 44, wherein said charging processing operation program has a function to distinguish at least one information selected from a group of information consisting of a manufacturer name, rechargeable battery type, model, construction, quantity, battery capacity, and internal resistance and the like of a rechargeable battery requiring charging processing inserted in said battery holding apparatus, and further wherein said program having a function in that said distinguished information about said rechargeable battery is displayed on said display means.

**50. (previously presented)** A charging system according to claim 44, wherein said input means is used to display on said display means information regarding a rechargeable battery requiring charging processing inserted into said battery holding apparatus.

**51. (previously presented)** A charging system according to claim 44, wherein a user, based on information regarding a rechargeable battery requiring charging processing, sets various conditions necessary to be required for charging said rechargeable battery by selecting same from a large number of alternatives displayed on a display screen of said personal computer.

**52. (previously presented)** A charging system according to claim 44, wherein, from information regarding said rechargeable battery requiring charging processing recognized by said personal computer, or from information regarding said rechargeable battery requiring charging processing input by a

user via said input means, a charging processing operation program having charging processing conditions most suited for said rechargeable battery required charging processing is selected from a plurality of charging processing operation programs stored within said charger.

**53. (previously presented)** A charging system according to claim 44, wherein either various information regarding optimum charging operation conditions for a selected rechargeable battery requiring charging processing or a predicted charging characteristics graph with regard to charging operation conditions for said selected rechargeable battery requiring charging processing can be displayed on said display means of said personal computer.

**54. (previously presented)** A charging system according to claim 49, wherein said input means is used to display on said display means information regarding a rechargeable battery requiring charging processing inserted into said battery holding apparatus, further wherein, various conditions necessary to be required for charging said rechargeable battery by selecting same from a large number of alternatives displayed on a display screen of said personal computer can be set by a user, based on information regarding a rechargeable battery requiring charging processing, and further wherein, from information regarding said rechargeable battery requiring charging processing recognized by said personal computer, or from information regarding said rechargeable battery requiring charging processing input by a user via said input means, a charging processing operation program having charging processing conditions most suited for said rechargeable battery required charging processing is selected from a plurality of charging processing operation programs stored within said charger, and further wherein, either various information regarding optimum charging operation

conditions for a selected rechargeable battery requiring charging processing or a predicted charging characteristics graph with regard to charging operation conditions for said selected rechargeable battery requiring charging processing can be displayed on said display means of said personal computer, and further wherein, aid predicted charging characteristics graph indicates a relationship between a battery voltage and a charging time or a relationship between a battery temperature and a charging time.

**55. (previously presented)** A charging system according to claim 54, wherein a display means of said personal computer displays a battery type, battery capacity, charging rate, and internal resistance and the like with regard to charging operation conditions for said selected rechargeable battery requiring charging processing, and displays whether it distinguishes the start of charging or charging in progress, and further displays during said charging operation on said rechargeable battery either a separate display of a battery voltage and battery temperature, which vary with the elapse of processing time, or a graph indicating a relationship between a battery voltage and a charging time or a relationship between a battery temperature and a charging time.

**56. (previously presented)** A charging system according to claim 54, wherein a notification means is provided which, after a start of a prescribed charging processing operation under selected charging conditions with respect to a selected rechargeable battery requiring charging processing, in a case in which said charging operation is completed, makes notification to a user of said completion.

**57. (previously presented)** A charging system according to claim 54, wherein said charging processing operation program has

a separate settings of charging processing conditions for all rechargeable battery currently existing to be subjected to charging processing, respectively.

**58. (previously presented)** A charging system according to claim 54, wherein said charging processing operation program is created that is suitable for charging processing of a new rechargeable battery each time a new rechargeable battery is marketed, said program being added to an existing charging processing operation program by updating processing.

**59. (previously presented)** A charging system according to claim 54, wherein any one of a PCI board or PCI card each forming said PCI interface, a floppy disk, a CD-ROM, or an IC card each of which containing said updated charging processing operation program is distributed to a user for a fee or free-of-charge, said user updating said charging processing operation program in his or her personal computer with said new charging processing operation program.

**60. (previously presented)** A charging system according to claim 54, wherein said updated charging processing operation program is distributed to a user via a communication system such as the Internet.

**61. (previously presented)** A charging system according to claim 60, wherein after a user, by means of a pre-established method, made a payment for said charging processing operation program for updating, said user downloads said charging processing operation program via the Internet, and updates said charging processing operation program in his or her personal computer with said new charging processing operation program.

**62. - 65. (canceled)**

**66. (previously presented)** A rechargeable battery charging method according to claim 68, wherein said charger performs control of current from an internal power supply circuit of said personal computer in accordance with said charging processing operation program, so as to execute charging processing with respect to a rechargeable battery requiring charging processing.

**67. (canceled)**

**68. (currently amended)** A rechargeable battery charging method wherein a charger to which is connected either a holder part configured so as to enable acceptance and a charging processing operation separately on one or a plurality of rechargeable batteries of various sizes requiring charging processing, or a stand part configured so as to enable acceptance and a charging processing operation of a cell package in that a plurality of rechargeable battery of the same size packaged within a prescribed pack, or directly of a cellular telephone with said pack built thereinto, is either built into a personal computer or connected externally thereto, wherein an internal power supply circuit of the personal computer is used as a power supply for said charger in a charging operation, and wherein said charger connected to said internal power supply circuit of said personal computer having built into it a charging processing operation program required for charging of said rechargeable battery, said charging processing operation program having capability for recognizing a type of rechargeable battery to be recharged and for selecting one charging processing operation program from a plurality of charging operation programs stored in said charger, based upon information about the type of battery thus recognized, said one selected charging process operation program being suitable for executing said charging operation for said recognized type of

battery and for setting and executing said selected program, and for monitoring conditions required for charging said recognized battery type, and for controlling recharging of said recognized battery, and wherein a charging operation is performed by executing said charging processing operation program selected for said rechargeable battery to be charged with utilizing an electric power supplied from said internal power supply circuit of said personal computer, while displaying at least either one of information related to said rechargeable battery to be charged or information related to said charging condition of said charging operation as being carried out on a display means connected to said personal computer, and further wherein said charger connected to said internal power supply circuit of said personal computer is connected to a signal output terminal of said personal computer or is connected to said signal output terminal ~~being~~ either directly or indirectly, via an appropriate connector and/or cable, so that a charging processing operation on a rechargeable battery is performed, and further wherein either the rechargeable battery holder part or stand part is formed so as to match the dimensions or shape of each individual rechargeable battery, ~~wherein,~~ wherein said rechargeable battery charging processing operation program executes high-speed charging processing and further wherein, said high-speed charging processing is executed with a charging current of at least 2C.

**69. (previously presented)** A rechargeable battery charging method according to claim 68, wherein said charging processing operation program included in said charger is either built into said personal computer by inserting a floppy disk, a CD-ROM, or an IC card containing said charging processing operation program into a prescribed location of said personal computer, or by inserting a PCI board or expansion board including an IC chip and PCI card therein each of which containing said



charging processing operation program therein has been mounted into an expansion slot of said personal computer.

**70. (previously presented)** A rechargeable battery charging method according to claim 68, wherein said charging processing operation program has mutually different charging processing conditions from each other as set for at least one factor among a rechargeable battery manufacturer name, rechargeable battery type, model, construction, quantity, battery capacity, and internal resistance and the like of a rechargeable battery to be subjected to charging processing.

**71. (previously presented)** A rechargeable battery charging method according to claim 70, wherein said charging processing operation program distinguishes at least one part of a manufacturer name, rechargeable battery type, model, construction, quantity, battery capacity, and internal resistance and the like of a rechargeable battery requiring charging processing and also displays said information on a display means of said personal computer.

**72. (previously presented)** A rechargeable battery charging method according to claim 77, wherein user uses an appropriate input means associated with said personal computer to input information regarding a rechargeable battery requiring charging processing and inserted in said holder part or said stand, said information being displayed on a display means of said personal computer.

**73. (previously presented)** A rechargeable battery charging method according to claim 77, wherein a user, based on information regarding a rechargeable battery requiring charging processing sets various conditions necessary to be required for charging said rechargeable battery by selecting same from

a large number of alternatives displayed on a display screen of said personal computer.

**74. - 76. (canceled)**

**77. (previously presented)** A rechargeable battery charging method according to claim 71, wherein, in said personal computer, from information regarding said rechargeable battery requiring charging processing recognized by said personal computer, or from information regarding said rechargeable battery requiring charging processing input by a user via said input means, a charging processing operation program having charging processing conditions most suited for said rechargeable battery required charging processing is selected from a plurality of charging processing operation programs stored within said charger, and displayed on said display means, and wherein, a predicted charging characteristics graph with regard to charging operation conditions for said selected rechargeable battery requiring charging processing is displayed on said display means of said personal computer, further wherein, said predicted charging characteristics graph indicates a relationship between a battery voltage and a charging time or a relationship between a battery temperature and a charging time, and further wherein, a display means of said personal computer displays at least one of a name of a battery manufacturer, a kind of battery, a battery type, battery capacity, quantity thereof, a capacitance thereof, charging rate, a charging power supply and internal resistance and the like with regard to charging operation conditions for said selected rechargeable battery requiring charging processing, and a display that distinguishes between the start of charging and charging in progress, and further displays during said charging operation on said rechargeable battery either a separate display of a battery voltage and battery temperature, which vary with

the elapse of processing time, or displays a graph indicating a relationship between a battery voltage and a charging time or a relationship between a battery temperature and a charging time.

**78. (previously presented)** A rechargeable battery charging method according to claim 77, wherein a notification means is provided which, after a start of a prescribed charging processing operation under selected charging conditions with respect to a selected rechargeable battery requiring charging processing, in a case in which said charging operation is completed, makes notification to a user of said completion.

**79. (previously presented)** A rechargeable battery charging method according to claim 77, wherein said charging processing operation program has a separate settings of charging processing conditions for all rechargeable battery currently existing to be subjected to charging processing respectively.

**80. (previously presented)** A rechargeable battery charging method according to claim 77, wherein said charging processing operation program is created that is suitable for charging processing of a new rechargeable battery each time a new rechargeable battery is marketed, said program being added to an existing charging processing operation program by updating processing.

**81. (previously presented)** A rechargeable battery charging method according to claim 77, wherein any one of a PCI board or PCI card each forming said PCI interface, a floppy disk, a CD-ROM, or an IC card each of which containing said updated charging processing operation program is distributed to a user for a fee or free-of-charge, said user updating said charging processing operation program in his or her personal computer with said new charging processing operation program.

**82. (previously presented)** A rechargeable battery charging method according to claim 77, wherein said updated charging processing operation program is distributed to a user via a communication system such as the Internet.

**83. (previously presented)** A rechargeable battery charging method according to claim 82, wherein after a user, by means of a pre-established method, makes a payment for said charging processing operation program for updating, said user downloads said charging processing operation program via the Internet, and updates said charging processing operation program in his or her personal computer with said new charging processing operation program.

**84. (previously presented)** A rechargeable battery charging method according to claim 77, wherein past charging processing information with respect to each individual rechargeable battery is stored as historical information.

**85. (previously presented)** A rechargeable battery charging method according to claim 84, wherein a storage means is provided for each individual rechargeable battery, and wherein past charging processing information for each individual rechargeable battery is stored in said storage means as historical information.

**86. (previously presented)** A method for charging a rechargeable battery in a charging system comprising a personal computer with an internal power supply circuit, a charger including a charging processing operation program using said internal power supply circuit of said personal computer as a power supply in performing a charging operation, a display means connected to said personal computer, an input means connected to said personal computer, a controller for causing said personal

computer including said charger, to drive, an external power supply means for driving said personal computer, and a battery holding apparatus connected to said charger for holding a rechargeable battery, said rechargeable battery charging method comprising:

- a battery list generation step of analyzing at least one of a name of battery manufacturer, a kind of a battery, a battery type, model, ratings, capacity, output voltage, charging/discharging characteristics, and internal resistance and the like of all currently existing chargeable rechargeable batteries, establishing optimum charging processing operation conditions for each said individual rechargeable battery, and generating a list thereof;

- a step of storing said battery list into a prescribed storage means of said personal computer;

- a step of starting software, including said selected charging processing operation program;

- a step of inserting a rechargeable battery requiring charging processing into a holding means of said battery;

- a step of said charging processing operation program distinguishing information with regard to said rechargeable battery requiring a charging operation inserted in said charger, selecting from said battery list a charging processing operation program suitable for a charging operation of said rechargeable battery, and of displaying said selected charging processing operation program on said display means, together with a charging graph or other battery information;

- a step of inputting a number of rechargeable batteries to be charged simultaneously;

- a step of verifying charging conditions on a screen of said display means, and then starting a charging operation;

a step during a charging processing operation of either causing drive of an alarm means, which makes notification that a charging processing operation is in progress, or causing a dynamic display of a charging graph on said display means; and

a step, in a case in which said charging processing operation on said rechargeable battery is completed, of performing a display indicating that said charging processing operation has been completed.

**87. (previously presented)** A method for charging a rechargeable battery in a charging system comprising a personal computer with an internal power supply circuit, a charger, including a charging processing operation program using said internal power supply circuit of said personal computer as a power supply in performing a charging operation, a display means connected to said personal computer, an input means connected to said personal computer, a controller for causing said personal computer to drive, an external power supply means for driving said personal computer, and a battery holding apparatus connected to said charger for holding a rechargeable battery, said rechargeable battery charging method comprising:

a battery list generation step of analyzing at least a part of a battery manufacturer, a battery type, model, ratings, capacity, output voltage, charging/discharging characteristics, and internal resistance and the like of all currently existing chargeable rechargeable batteries, respectively, establishing optimum charging processing operation conditions for each individual rechargeable battery, respectively, and generating a list thereof;

a step of storing said battery list into a prescribed storage means of said personal computer;

a step of starting software, including said selected charging processing operation program;

a step of inserting a rechargeable battery requiring charging processing into said holding apparatus connected to said charger;

a step of, in accordance with information with regard to a rechargeable battery requiring charging processing, selecting a charging processing operation program suitable for a rechargeable\_battery requiring a charging processing operation from said battery list;

a step of displaying a charging graph;

a step of inputting a number of rechargeable batteries to be charged simultaneously;

a step of verifying charging conditions on a screen of the display means, and then starting a charging operation;

a step during a charging processing operation of either causing drive of an alarm means, which makes notification that a charging processing operation is in progress, or causing a dynamic display of a charging graph on said display means; and

a step in a case in which said charging processing operation on said rechargeable battery is completed of performing a display indicating that said charging processing operation has been completed.

**88. (previously presented)** A rechargeable battery charging method in a charging system comprising a personal computer with an internal power supply circuit, a charger, including a charging processing operation program using said internal power supply circuit of said personal computer as a power supply in performing a charging operation, a display means connected to said personal computer, an input means connected to said personal computer, a controller for causing said personal computer to drive, and an external power supply means for driving said personal computer, said rechargeable battery charging method comprising:

a battery list generation step of analyzing at least one of a battery manufacturer name, battery type, model, ratings, capacity, output voltage, charging/discharging characteristics, and internal resistance and the like of each one of all currently existing chargeable rechargeable batteries, establishing optimum charging processing operation conditions for each individual rechargeable battery, respectively, and generating a list thereof;

a step of storing said battery list into a prescribed storage means of said personal computer;

a step of starting software, including said selected charging processing operation program;

a step of inserting a rechargeable battery requiring charging processing into said a holding apparatus of said charger;

a step of a user using said input means to input separately to said personal computer at least a part of a battery manufacturer name, battery type, battery voltage, battery capacity, charging rate, and internal resistance and the like for a rechargeable battery requiring charging processing;

a step of said personal computer selecting from said battery list, based on said input information, a charging processing operation program suitable for said rechargeable battery requiring a charging processing operation;

a step of displaying a charging graph;

a step of inputting a number of rechargeable batteries to be charged simultaneously;

a step of verifying charging conditions on a screen of said display means, and then starting a charging operation;

a step during a charging processing operation of either causing drive of an alarm means, which makes notification that a charging processing operation is in progress, or causing a dynamic display of a charging graph on said display means; and



a step in a case in which said charging processing operation on said rechargeable battery is completed of performing a display indicating that said charging processing operation has been completed.

**89. (currently amended)** A charging method according to ~~claim 86~~ any one of claims 86-88 wherein a provider of said charging processing operation program discloses optimum charging processing conditions or a charging processing operation program for a prescribed rechargeable battery on a web page via the Internet, so that any user can access said provider of said charging processing operation program and receive distribution of said charging processing operation program via said Internet.

**90. (currently amended)** A method for charging according to ~~claim 86~~ any one of claims 86-88 wherein a provider of said charging processing operation program discloses optimum charging processing conditions or a charging processing operation program for a prescribed rechargeable battery on a web page via the Internet, and wherein a user executes placement of an order and remittance of payment therefor via said Internet, whereupon a floppy disk, CD-ROM, IC card, or expansion board onto which is installed an IC chip containing said charging processing operation program required for execution thereof is sent to said user.

**91. (previously presented)** A charging method according to claim 86, wherein a provider of said charging processing operation program discloses optimum charging processing conditions or a charging processing operation program for a prescribed rechargeable battery on a web page via the Internet that is at all times the latest optimum charging processing conditions or the latest charging processing operation program, so that a user can execute placement of an order and remittance

of payment therefor via the Internet, enabling said user to download said latest charging processing conditions or said latest charging processing operation program to his or her personal computer, thereby maintaining a latest charging processing operation environment on his or her personal computer.

**92. (previously presented)** A storage medium onto which is stored a program for the purpose of causing a computer to execute a charging method recited in claim 86.

**93. (previously presented)** A rechargeable battery charging apparatus wherein said apparatus comprises a charger which can be connectable directly or indirectly to an internal power source of a personal computer detachably and selected from a group consisting of an international PCI (personal computer interface) standard selected from either one of a PCI board or PCI card, an IC chip mounted on an expansion board or the like, a CD-ROM, a floppy disk, an IC card and a personal computer hard disk (HD), each including therein a charging processing operation program which being for the purpose of causing a computer to execute a charging method recited in claim 86, a predetermined battery holder means, a connecting cable or a wire for connecting said holder means to said battery charger or for connecting said charger to an internal power supply source of a personal computer, and a predetermined operation manual of said charger, wherein said charger, said battery holder means, said connecting cable or a wire and said operation manual are collected into a kit so as to be sold publicly as a battery charging set.

**94. (previously presented)** A rechargeable battery charging apparatus according to claim 93, wherein said kit is

individually formed based upon an application to which said rechargeable battery to be charged being used, respectively.

**95. (previously presented)** A rechargeable battery charging system which comprising the steps of;

creating a charging processing operation program used for each one of various kinds of rechargeable battery to be charged, respectively;

storing said charging processing operation program created for each one of various kinds of rechargeable batteries to be charged, respectively, into a predetermined memory medium;

opening said charging processing operation program to the public through an communication net works or by printing out same on a hard storing medium;

providing said charging processing operation program suitable for an user's intention, when said user having a personal computer had accessed to this system;

asking said user to pay a predetermined necessary expenses through a predetermined payment system by a business entity providing said system to the public;

providing said charging processing operation program to said user by distributing system or through said communication net works, when said business entity had confirmed that said user had said predetermined expenses through said predetermined payment system;

installing or down loading said charging processing operation program by said user into a personal computer owned by said user;

performing charging processing operation for a predetermined rechargeable battery by said user utilizing said charging processing operation program; and

updating said charging processing operation program by said user with a new version of said charging processing operation program which would arbitrarily be down-loaded by said user.

**96. (previously presented)** A rechargeable battery charging apparatus according to claim 37, wherein a real time monitoring operation about an instant charging condition of said rechargeable battery to be charged, is performed with either one of said separate display of a battery voltage and battery temperature or said graph as shown on said display means.

**97. (previously presented)** A charging system according to claim 54, wherein a real time monitoring operation about an instant charging condition of said rechargeable battery to be charged, is performed with either one of said separate display of a battery voltage and battery temperature or said graph as shown on said display means.

**98. (previously presented)** A rechargeable battery charging method according to claim 77, wherein a real time monitoring operation about an instant charging condition of said rechargeable battery to be charged, is performed with either one of said separate display of a battery voltage and battery temperature or said graph as shown on said display means.

**99. (previously presented)** A method for charging a rechargeable battery according to claim 86, wherein said method further comprising a step of performing a real time monitoring operation about an instant charging condition of said rechargeable battery to be charged, with said graph as shown on said display means.

**100. (previously presented)** A method for charging a rechargeable battery in a charging system according to claim 87, wherein said method further comprising a step of performing a real time monitoring operation about an instant charging

condition of said rechargeable battery to be charged, with said graph as shown on said display means.

**101. (previously presented)** A method for charging a rechargeable battery in a charging system according to claim 88, wherein said method further comprising a step of performing a real time monitoring operation about an instant charging condition of said rechargeable battery to be charged, with said graph as shown on said display means.